

# Development and Installation of Unified Patient Records

**JAMES B. SWAYNE, M.A., PAULINE O. ROBERTS, M.D., M.P.H., RAYMOND H. EDGERLY, M.P.H.,  
and TOSHIKO S. YOSHIDA, B.S.**

**T**O INCREASE the usefulness of its records and the efficiency of its staff operation, the Los Angeles City Health Department in 1957 began to develop a unified system for handling patients' records.

The department had been reorganized 4 years earlier to establish integrated administration with decentralized operations. Integration of the record system, however, was slow to materialize due to the complexity of the problem, natural resistance to change, and lack of a planned program to study, recommend, and install new procedures.

The health department functions through 10 health districts with 16 health centers serving a population of 2.5 million. The system described in this report was in operation in nine health centers as of October 1961. Installation in the remaining health centers will be completed in 1962.

The patient record systems in use before installation of the unified records system reflected the early organizational structure of the health department, under which programs tended to operate autonomously with a minimum of administrative integration. Each service developed its own forms and systems for recording and filing patient histories; in a typical district health center there were 19 different filing systems for patient records, with highly diverse

types of equipment, sizes of folders, types of forms, systems of indexing and locating records, and other procedures.

Multiple records for a single patient were common, and when more than one member of a family was served in a health center or clinic there was no efficient way to bring together all the information portraying the family situation. The variety of record systems hindered interchange of information among the clinics and staff services. Cumbersome systems were necessary to enable the services to communicate with each other, and these were often ineffective; not infrequently one service was unaware of supervision of a patient by another service in the same health center. As a result it was difficult to carry on a coordinated program. Furthermore, the record system was expensive; use of multiple filing systems added to the cost of supplies, printing, and equipment. More serious, however, was the waste of staff time in interviewing patients to obtain information already contained in health center records, searching multiple files for information, and creating special documents to notify other staff members about case developments.

The complexity of the record systems reduced clerical efficiency. Clerks in district health centers tended to become specialists in program areas, and this prevented flexibility in assignments. Small health centers had too few clerks to permit specialization, and hence the clerical and recordkeeping operations were performed poorly. With the diversity of record systems and lack of uniformity among health centers, it was not possible to develop

---

*The authors are with the Los Angeles City Health Department. Mr. Swayne is director of statistics and analysis, Dr. Roberts is a district health officer, Mr. Edgerly is principal public health statistician, and Mrs. Yoshida is a public health statistician.*

centrally useful instructional materials for clerks, nor was it feasible to conduct a clerical training program.

Through the years, the health department staff had become dissatisfied with record practices. There were many complaints about the number and types of forms used, the shortage of clerical help, the excessive amount of time spent by professional staff in "clerical" functions, and the lack of uniform procedures. This was the situation in 1957 when development of unified patient records was initiated.

Under the unified record system, the separate records maintained by each clinic service and by public health nurses and social workers have been eliminated. All health center services given a patient are recorded in a single chart and the charts for all family members served in a health center are combined in a family folder. The unified record is used by all staff members who serve patients, including clinicians, public health nurses, clinic nurses, social workers, nutritionists, and medical investigators.

### Development

The highlights in development of the unified patient record system were as follows:

1. Responsibility for conducting a departmental forms control program was delegated to the statistics and analysis division of the health department.

2. The statistics and analysis division was strengthened by adding a senior statistical analyst. An analyst and a senior clerk typist were assigned to work full time on forms review.

3. A plan was developed for carrying out the forms review functions, and the appropriate division of responsibility among organizational units was decided upon.

4. A file was established containing all health department forms, together with a forms data sheet for each form. Information on the forms data sheet includes how the form is used, how and by whom completed, how filed, and how long retained. If the form is new the forms data sheet shows the effect of the form on existing procedures.

5. A card index of the 600 forms then in

use was established. Each form was classified by program, such as tuberculosis control or maternal health, and by function—to request, to identify, to consent.

6. A procedure was initiated whereby all orders for forms were submitted to the statistics and analysis division for checking with the file of approved forms.

7. An effort was made to review all new forms or revisions of existing forms. Insofar as possible with staff available, the statistics and analysis division gave consultation service to administrative staff, including assistance in designing forms, preparation of specifications, and development of instructions or written procedures.

8. A public health analyst from the State department of public health, bureau of records and statistics, made several visits to the health department to give consultant service during the early stages of development of the unified record system. This analyst had participated in several program surveys in the Los Angeles City Health Department and had an excellent knowledge of record practices in Los Angeles as well as in other local health departments. Her assistance was a key factor in developing the record system.

9. A forms and procedures committee was established with representation of all the major organizational units and occupational groups in the city health department, such as nurses, clerks, and physicians. The director of the statistics and analysis division served as chairman of the committee, and the analyst working on forms review served as secretary. The forms and procedures committee served in a dual role: (a) as a catalyst to help gain acceptance of unified patient records and (b) as a forum for interchange of ideas among the various interests involved. Understanding and agreement on the principle of unified records and their feasibility was achieved in the committee long before its general acceptance in the health department.

10. Development of an operations manual for unified patient records was begun. Various drafts of the manual and of all forms involved in unified patient records were reviewed by the forms committee over a period of approximately 18 months.

11. Upon completion of these studies, the plan of operations and installation was presented to the executive officer and bureau chiefs for preliminary approval.

12. Official approval of the health officer and the board of health commissioners of the Los Angeles City Health Department was secured, and a budget adjustment was obtained to purchase files for a pilot installation.

13. A manual was developed for installation of the unified record system.

Following the pilot installation, the system was modified to incorporate the knowledge and experience gained.

### Installation

It was recognized that success of the unified record system was dependent on its proper installation, under the guidance of personnel with a thorough knowledge of the system and with skill in records management. It was also essential that health centers be provided with extra help to assist in conversion of the existing active records to unified records. This meant that the installation could not be done simultaneously in all 16 health centers, and a 3-year schedule of staggered installation was established.

*Pilot installation.* The pilot installation was made at the Southwest District Health Center. The health officer of this district was a member of the forms and procedures committee. She had participated in the development of the system and was thoroughly familiar with its purposes and methods. Her support was a major key to the success of the pilot installation. Aside from the value of gaining experience in one health center before proceeding to others, the "pilot" concept helped by introducing an element of gradualness which calmed apprehension of personnel who feared change.

*Conversion of records.* It was necessary to decide which records in a health center would be converted to the new system. The alternatives included: conversion of (a) records of all cases, both active and inactive, (b) records of new cases as they are opened, or (c) records of all cases currently active at time of installation and new cases as they are opened.

The first alternative, although theoretically

desirable because it would immediately establish a single set of files, was too expensive, and the second was unsatisfactory because each health center would be operating on multiple systems for many years. The third alternative was considered a suitable compromise since it could be accomplished with a minimum of staff and would mean that all active records were on a single system.

*Division of responsibility.* Responsibilities during the period of installation were divided as follows: (a) the city health department statistics and analysis division staff were responsible for training district health center staff in operations and for physically converting to the new format all currently active health center records, and (b) district health center staff were responsible for registering and handling new cases added during the period of conversion.

*Orientation of district staff.* Upon completion of the pilot installation, district health officers, supervising public health nurses, and supervising clerks from all districts attended a meeting at the pilot health center to observe the new record system, to hear from pilot district staff about their experience with the system, to learn of the general plan for installation, and to receive copies of the manual of Unified Record Files.

Approximately 2 months prior to the start of installation of the unified record system in a district, a meeting was held with the district health officer to acquaint him in a general way with the mechanics of installation. An inventory was made of all filing equipment and records in the district. Agreement was reached regarding location of the unified record files, working space for the district health center clerks, and working space for the installation team. A target date was established for the start of installation of the new system.

Immediately prior to the start of installation in each health center a meeting of the entire health center staff was held. The purpose and benefits of unified patient records were described, and the procedures outlined in a general way. The staff was told about the method of installation and the schedule for its completion. Questions about the procedures were answered, and copies of the Unified Rec-

ords Files manual were distributed to key staff members.

*Phases.* The installation of the unified record system in each health center was conducted in phases. The first phase was the conversion of public health nursing records, the second was the conversion of prenatal clinic records, and so on. Installation by phases is essential because it enables the health department staff installing the system to concentrate on a single area of work, and it facilitates the learning process of the district health center staff.

*Training district staff.* As work on each phase was started, the staff involved met for one or more training sessions to learn how to apply the system in the health center. At these meetings a target date was set for the health center staff to establish records under the new system. The formalized training sessions, however, were only the start of the learning process. The clerks mastered the new system gradually by observing the team engaged in converting active records and by receiving direct instructions from them.

*Conversion team.* The team engaged in physically converting currently active records to the new system consisted of a senior clerk typist and a clerk typist working under the direct supervision of the senior analyst from the statistics and analysis division of the city health department. The clerical positions used in the installation of the unified record system were made available by discontinuing a central nursing index for the city, formerly maintained in the medical records section of the statistics and analysis division. The value of this central index had been questioned for several years and it was felt that the effort and funds expended for the index could better be used in strengthening the record system in district health centers.

Central control of the clerical team working on conversion of records is essential to secure uniform installation in all health centers. It also prevents diversion of the conversion team to routine work where there is a shortage of clerical staff in the health center.

### **Evaluation**

Evaluation of the pilot installation was empirical in approach. However, it proceeded

systematically and consisted of two major phases.

- Recording all questions, comments, criticisms, and suggestions offered by health center staff during the pilot installation. Each such criticism or suggestion was reviewed with the district staff involved and with appropriate consultant staff from the administrative offices of the health department. A decision was reached on each item and where necessary the manual for Unified Record Files was modified to reflect the decisions.

- When the pilot installation was completed all program consultants participated in a meeting at the pilot health center. All details of the system were reviewed and discussed. The consultants were invited to visit the health center to review records and to discuss recording problems with district staff. They were urged to submit comments and suggestions based on their own observations. A time limit of 4 months was set for receipt of comments for consideration in connection with the final draft of the Unified Record Files manual. This meeting resulted in some valuable contributions to the system and improved the effectiveness of consultants during installation of the system in other areas of the city.

While the pilot installation was being evaluated, installation of the unified record system in other health centers continued according to the original schedule, and the experience gained in these centers was considered in arriving at the final draft of the Unified Record Files manual, which was issued approximately 12 months after the beginning of the pilot installation.

### **Problems and Solutions**

Record system development is essentially an analytical process of identifying problems, reviewing pertinent factors, weighing alternatives, and finding solutions. An inventory of the major record management problems in developing the unified patient record system in Los Angeles, the solutions reached, and the reasons behind the solutions is presented below.

These solutions reflect the experience gained in the pilot installation and subsequent experience over a period of approximately 8 months. They are administrative decisions made in the

light of the needs of the Los Angeles City Health Department and are not presented as general recommendations. Each health department may have a unique combination of circumstances which controls its record requirements.

*PROBLEM. What services will be included in unified patient records?*

**SOLUTION.** All health center services for families registered in a health center are recorded in the unified record.

All health center staff, including clinicians, public health nurses, clinic nurses, medical social workers, clerks, nutritionists, and medical investigators, share in use of the unified records.

A unified record is established, if one is not already in existence, for each family receiving any of the following services:

- Public health nursing service
- Medical social service
- Venereal disease clinic
- Tinea capitis clinic
- Tuberculosis clinic
- Child health conference
- Child cardiac diagnostic clinic
- Hearing diagnostic clinic
- Maternity clinic
- Adult cardiac diagnostic clinic

**REASONS.** Increases effectiveness by allowing each staff member ready access to all available information.

Aids coordination of staff services.

Eliminates duplicate interviewing and recording of identifying and social information.

Eliminates special forms and reports for notifying other staff about case developments since the entire record is transmitted to the staff member concerned.

**SOLUTION.** Patients receiving the following types of services only are not registered for unified patient records:

- School health services
- Screening X-ray or skin tests
- Biologics distribution
- Immunization only
- Health certificate validation
- Foreign travel certificate
- VD contact investigation of patients not examined in a clinic

**REASON.** Records of school health services are maintained at the school. For the other services, chance of future reference is too small to justify the cost of registering, indexing, and setting up patient record folders.

*PROBLEM. How shall brief services be recorded?*

**SOLUTION.** There is no supplementary record system for "brief services." If a brief service is given, the worker judges whether the information is significant

for future service. If so, a record number is assigned, an index card is prepared, and a family folder is established in much the same manner as records for other services.

**REASON.** Searching supplementary files is inefficient and time-consuming. If information is worth saving, it should be filed where there is a reasonable likelihood that it can be found when needed.

**SOLUTION.** A brief service form is provided for recording information included in the family folder. The procedures for recording a brief service differ from the procedures for recording other services in the following respects:

Family information, consent for treatment, and progress notes are on a single sheet.

Family information is abbreviated to include only the names of the family head, spouse, and child served.

X-ray and laboratory reports are fastened without mounting on special sheets.

**REASON.** The brief service form reduces paperwork and preparation of forms without destroying the basic unity of the files.

**SOLUTION.** Services for which the brief service form may be used include large X-rays, private physician referrals for special diagnostic tests, and epidemiologic investigations if continued followup is not needed.

**REASON.** These services rarely require extensive data. If the need arises, the record is easily converted to the conventional format.

*PROBLEM. Who shall direct and supervise the unified patient record system?*

**SOLUTION.** Each district health officer directs the operation of the record system within his district.

**REASON.** Under the department's organization plan, the district health officer directs all operations within his district. Decentralized direction of record staff enables coordination of record work with daily operations within each health center.

**SOLUTION.** The district health officer delegates to a senior clerk responsibility for direct supervision of clerical personnel working on the files.

**REASON.** Since file management largely involves clerical procedures, direct supervision of file personnel is performed by trained and experienced clerks. A medical records librarian class is not available under the city civil service classification plan.

**SOLUTION.** The statistics and analysis division of the city health department coordinates development of the basic record procedures and provides technical consultation to district staff.

**REASON.** Citywide uniformity in certain basic record practices is essential for efficiency and economy. The central administration controls the record system through its forms control program, its Unified Record Files manual, and through technical consultation and training of district staff.

*PROBLEM. Where shall records be filed?*

**SOLUTION.** Records are filed at the health center which serves the area where the patient lives; the patient's

place of residence, rather than location of the service, controls the location of the record.

**REASONS.** Since services to a family may be given at more than one health center, a unified family record would not be possible if records were filed according to location of service.

If a patient receives clinic service at a health center within a district other than the one adjacent to his place of residence, the health center giving clinic services requests the record from the health center serving the district in which the patient lives. This is possible because clinics operate on an appointment basis.

*Exception.* If a patient receives clinic service outside his district of residence, the health center giving service establishes a new record and maintains it until service is discontinued. The record is then transferred to the district of residence.

**REASON.** This exception was allowed because inter-district communications are not as rapid nor as easily controlled as those within a district. However, under department policy, services are rarely given outside the district of residence.

**PROBLEM.** *Where shall the files be located?*

**SOLUTION.** In each health center all patient records are maintained at a single location adjacent to the working area of the clerks assigned to operate the files. Whenever physical facilities permit, this area also serves for central registration of patients.

**REASON.** Centralization of the records in the health center is basic to a unified patient record system.

**PROBLEM.** *How shall records be identified and filed?*

**SOLUTION.** Family record numbers are assigned sequentially as new families are admitted to service.

Records are filed in family record number sequence.

**REASON.** Numerical identification simplifies pulling and refiling records.

**SOLUTION.** An individual patient's record number consists of the family record number of five digits plus an additional digit, or digits, which identifies the individual. The extra digit is assigned on the basis of the order of listing on the family information sheet.

*Example.* If the family record number is 14-728, the child listed on line 3 of the family information sheet is identified as patient No. 14-728-3. (The first five digits have no meaning other than family identification.)

**REASON.** The individual's number may be useful in making a positive identification when two persons in the family have the same given name. It may help to avoid errors in filing X-rays and laboratory reports.

**SOLUTION.** Each patient receives an identification card which shows his name and family record number. Spaces are available on this card for recording appointments.

**REASON.** Matching the record with the patient is facilitated.

**SOLUTION.** In districts with more than one health center a letter prefix identifying the health center is added to the patient's record number.

*Example.* Family record number 13-745 filed at Van Nuys Health Center is identified as record No. V 13-745.

**REASON.** The health center prefix shows the health center to which a record must be returned at the close of a clinic.

**PROBLEM.** *Shall record numbers be assigned centrally for the entire city?*

**SOLUTION.** No. Each health center assigns its own record numbers.

**REASON.** Decentralized numbering enables a health center to use number identification as soon as service is initiated. Eliminates preparation and flow of special documents to central registration point.

**PROBLEM.** *How can a record be located if a patient's record number is not known?*

**SOLUTION.** Each health center maintains a master alphabetical index card file by family surname.

**REASON.** A name index is essential if records are filed numerically.

**PROBLEM.** *What information shall be recorded on the master index card?*

**SOLUTION.** Family surname, maiden name of mother, given names and year of birth of each family member.

**REASON.** This information identifies a specific family record or a specific member of the family unit.

**SOLUTION.** Address at time record is established.

**REASON.** Address provides a useful clue for specific identification of a record when family composition is not known.

**SOLUTION.** Cross reference to multiple index cards.

**REASON.** Facilitates culling of multiple index cards.

**SOLUTION.** If family members are known by more than one surname, multiple index cards, identical except for family surname, are prepared.

**REASON.** Multiple index cards alleviate record identification problems when family ties are irregular or transitory.

**SOLUTION.** Use of the index card for recording type of service, date of services, or other extraneous items is forbidden.

**REASON.** Service information posted on index cards is often inaccurate, is always incomplete, and is costly to maintain. The family record should be the sole source of information about patient services.

**PROBLEM.** *Shall a citywide case index be established?*

**SOLUTION.** A central index of family records was not established. In fact, a central index of nursing cases was discontinued when installation of the unified record system was inaugurated. The department, however, maintains a central tuberculosis register and central morbidity files.

**REASONS.** The justification for a central city index would be (a) that it discloses records at other health centers which cannot be discovered when interviewing the patient, and (b) that the previous record, if lo-

cated, is of significant value in serving the patient. These advantages would have to outweigh the cost of routinely routing information to a central index, the cost of maintaining the index, and the cost of searching it. The Los Angeles City Health Department evaluation, based on experience with the central nursing index, was that although some previous records which otherwise would not be known were disclosed by a central index, this information was rarely essential to case management and usually was of little practical use, due to delays in receiving records.

*PROBLEM. Shall a central district index be established if there is more than one health center in the district?*

**SOLUTION.** Central indexes were not established in the districts with more than one health center. Experience to date has not indicated the need for central district indexes, but this decision is subject to review with further experience.

**REASON.** Each health center is regarded as a separate entity for operations. The advantages of complete decentralization outweigh the potential convenience of a district index. The principles involved are much the same as those which weigh against a central city index.

*PROBLEM. How shall the family unit be defined?*

**SOLUTION.** The determination is based on relationship to the household head. The family unit consists of the household head, his spouse, and unmarried children, whether adult or minor, living together in a single household. A common-law spouse is included if relationship is acknowledged and appears to be permanent. Parents of the household head, relatives other than those mentioned, and unrelated persons living in the household are not considered members of the family.

**REASON.** A simple, understandable definition is essential.

**SOLUTION.** An unmarried pregnant minor is registered as head of a separate family unit even though living at home with parents. The parents of the minor are listed as "others in household" on the family information sheet.

**REASON.** Record organization is simplified by anticipating the establishment of a new family.

*PROBLEM. How shall records be requested from the files?*

**SOLUTION.** The person requesting a record completes an out card. The out card shows patient record number, person or service requesting the record, and date. The file clerk inserts the out card in the files when she removes the record.

**REASONS.** The out card serves as a request form.

The burden of preparing out cards is removed from the file clerk.

The use of out cards is essential to success of a unified record system.

*PROBLEM. When a record is requested should the entire record be pulled, or only the portion relating to the specific service?*

**SOLUTION.** The family folder is maintained as a unit and the entire folder is pulled in response to all health center requests.

**REASON.** One purpose of the unified record system is to encourage each service to consider the entire family situation. This purpose would be defeated if the family folder were segmented.

*PROBLEM. Shall public health nurses carry records to the field?*

**SOLUTION.** This practice is permitted, subject to general approval of the district health officer and supervising public health nurse. Plastic brief cases are provided to protect the records. (NOTE: All public health nurses use automobiles for transportation.)

**REASON.** Some nurses find it efficient to refer to records and enter information while in the field. The practice is desirable if suitable precautions are taken to safeguard records and to return them promptly to the files.

*PROBLEM. What happens if the patient comes to the clinic and the record is in use in the field or in another clinic?*

**SOLUTION.** Except for initial VD visits or emergencies, patients are not seen without appointments. Since appointments are recorded in the record, workers schedule patient's visits in such a way as to avoid conflicting needs for the record. If service must be given when the record is not available, the pertinent information is recorded on progress notes for incorporation in the record later.

**REASON.** This question is frequently asked by persons who are skeptical about unified family records. In practice, there has been no problem.

*PROBLEM. Where should inactive records be filed?*

**SOLUTION.** Inactive records remain in the files until eligible for destruction. No distinction is made between active and inactive records.

**REASON.** Searching is reduced if there is only one location for a record.

*PROBLEM. How can the files be kept at a manageable size?*

**SOLUTION.** Annual culling of the files is required.

**REASON.** To avoid a "record explosion," outgo must balance intake.

**SOLUTION.** The criterion for culling is no service within the past 5 years.

**REASON.** This is the minimum period required by law for destruction of records.

**SOLUTION.** To facilitate culling, the year the first family member is admitted for service is circled on

the outside of the folder. When a member of the family first receives service in subsequent years, the new year is circled.

**REASON.** This practice reduces the number of records that must be opened and examined to determine eligibility for destruction. Ease of culling promotes good record practices.

**PROBLEM.** *Should index cards remain in the files after a record is culled?*

**SOLUTION.** Index cards are culled for destruction when the family record is culled.

**REASON.** Index cards for records which have been destroyed are useless.

**PROBLEM.** *How should large X-rays be registered and filed?*

**SOLUTION.** Large X-rays are registered and filed by patient's record number.

**REASON.** Eliminates a special numbering system and separate index card file for large X-rays.

**SOLUTION.** X-rays are filed in a special file.

**REASON.** X-rays are too large to be incorporated in the family folder.

**SOLUTION.** The form on which large X-ray results are recorded is also used to order the X-ray.

**REASON.** Eliminates special form for ordering large X-rays.

**PROBLEM.** *How shall information be entered if two or more family members are clinic patients?*

**SOLUTION.** Separate sections for each member are established in the family folder. These are separated by dividers with fasteners inserted so that each may be added to without disturbing contents of other sections. All sections are securely attached in the family folder.

**REASON.** Merging information about different patients in the same section would be confusing.

**PROBLEM.** *How should information be entered if the same patient is receiving service from more than one source?*

**SOLUTION.** Records of all services to a patient are merged in the same section of the family folder.

**REASON.** This practice facilitates coordination of services.

**PROBLEM.** *Shall there be a separate section for recording family information?*

**SOLUTION.** A separate section labeled "family" is established whenever the public health nurse or medical social worker gives extended service to the family as a whole. The judgment as to need for a family section is made by the nurse or social worker.

**REASON.** Separation of general family background from the sections for individual clinic patients is necessary to avoid confusion and duplication. Ap-

propriate notations of pertinent family information are made in the patient sections of the folder.

**PROBLEM.** *Where shall information about contacts of tuberculosis cases be recorded?*

**SOLUTION.** A section of the family folder labeled "contact" is established. Separate progress note sheets are entered for each household member.

**REASON.** Ready identification of contact information facilitates control on followup.

**SOLUTION.** Separate family folders are established for nonhousehold contacts. These are cross-referenced to the source case.

**REASON.** Maintenance of a record embracing multiple households would hinder ease of reference and perhaps lead to confusion.

**SOLUTION.** Tuberculosis contact registers were discontinued.

**REASON.** These registers were often incomplete and inaccurate.

**PROBLEM.** *How shall nursing records on industrial establishments be maintained?*

**SOLUTION.** When an employed person contracts tuberculosis or other communicable disease, the place of employment is registered for a family folder if work contacts are to be followed. Procedures for registration, numbering, and indexing are identical with those for families, except that the name of the establishment is used in lieu of family surname. The records and index cards are merged with those for family records.

**REASON.** It is desirable to establish record procedures which are common to all cases.

**PROBLEM.** *Shall the medical social worker or public health nurse record personal or family information which is revealed to her in confidence?*

**SOLUTION.** The worker records all information which in her professional judgment will be useful for proper management of patients and for compliance with public health responsibilities.

**REASONS.** This question was prompted at the outset by professional workers who were accustomed to a single discipline approach to recording. These workers were fearful of divulging information to fellow workers of other disciplines but accepted sharing of records with a supervisor or colleague within the same discipline.

Public health programs require a multidiscipline approach. Since teamwork of doctors, nurses, social workers, clerks, and others is essential, a commitment to withhold information would rarely if ever be appropriate.

**PROBLEM.** *In selected cases the medical social worker may prepare an extended narrative for teaching, supervision, training, or research purposes. Should the regular patient records be used?*

**SOLUTION.** No. Special records are created.

**REASON.** The special records may be used for extended periods outside the health center without interfering with efficient use of patient records by health center staff.

**PROBLEM.** *What supplemental card files, registers, and ticklers are necessary to assure followup of patients?*

**SOLUTION.** All health center card files, registers, and ticklers to assure followup of patients under clinic supervision were discontinued.

**REASON.** Uniformity and simplicity of control devices are essential. The basic operating tools rather than subsidiary record systems should be used to control followup. Use of subsidiary records requires added posting of data, slows the flow of information, and often results in incorrect administrative action due to incomplete or inaccurate data.

**SOLUTION.** For patients under clinic supervision, followup is controlled by clinic appointment sheets. If continued followup is mandatory by department policy, a new appointment is recorded at the time of each clinic visit. When appointments are made far in advance of the clinic date, an appointment reminder form is typed at the time the appointment is scheduled, and is held in a pending file to be mailed out 2 weeks in advance of the appointment date. If the appointment is missed, a second appointment letter is mailed. If the second appointment is missed, the case is referred to the district health officer for appropriate action.

**REASON.** Control of followup stems naturally from the record and from basic appointment procedures.

**SOLUTION.** Public health nurses and medical social workers use desk cards for active cases under supervision.

**REASON.** The desk card shows the record number for families under supervision and thereby facilitates requests for records from central files. It is also used to schedule field visits and control followup of patients not under clinic supervision.

**PROBLEM.** *What type of file equipment shall be purchased?*

**SOLUTION.** Open shelf files were chosen. Description: 6 shelves per unit, steel, letter-size, height 78 inches, width 36 inches, depth 13 $\frac{1}{4}$  inches, on 6-inch base, with inside measurement 34 inches by 12 inches; 42 shelf dividers per unit.

**REASONS.** Open shelf cabinets require 30 to 40 percent less floor area than conventional drawer files. The initial cost is 40 to 50 percent less per record file. These specifications describe relatively standard letter-size shelf files readily available at low cost from many suppliers. The specified shelf depth provides no overhang for possible greater ease in locating records. If folders with end tabs are used, lack of overhang presents no problems.

Standard individual units are specified rather than installations built up from individual parts to fit a

specific area. The individual units were deemed preferable, although initially more expensive, because of greater flexibility in file arrangement to meet changing needs.

Seven shelf dividers per 3-foot shelf were found to be desirable to prevent sagging of records.

**PROBLEM.** *Are cabinets with doors and locks essential to protect the confidentiality of records?*

**SOLUTION.** Open shelf files without doors and locks are used.

**REASONS.** The security of records is protected by maintaining them in a room which can be locked when personnel responsible for their custody are absent. For additional security the master index card cabinets may be locked.

Locking and unlocking file units daily is inconvenient, time consuming—and rarely done.

Doors with locks add substantially to the cost of open shelf files.

**PROBLEM.** *What specifications should be established for the family folder?*

**SOLUTION.** Letter-size folder, 100 percent sulfate manila stock, 11-point thickness, with end tabs reinforced to 22 point. Each folder has one Acco-type fastener, machine embossed, without compressor.

**REASONS.** Reinforced tabs are desirable because of wear in handling.

Embossed fasteners are essential because exposed fasteners catch adjacent folders.

Compressors delay insertion of forms, add to cost, and use file space.

**PROBLEM.** *What type of file equipment shall be used for the master index?*

**SOLUTION.** The master index card file is housed in conventional, 3' x 5' drawer-type steel cabinets.

**REASON.** District health centers were amply supplied with 3' x 5' card file cabinets used for files which were discontinued upon advent of unified patient records.

**SOLUTION.** Standard "expandable" alphabetic guides, using color as an aid, with 100 guides per filled double tray. Additional guides are ordered as the file expands.

**REASON.** Although the initial cost of these guides is relatively high, they are attractive, durable, and reduce searching time.

## Next Steps

When installation of the unified record system is completed in all 16 health centers, the time will be appropriate for further developments:

- Establish a centralized on-going training

program for district health center clerks covering the mechanics of unified patient records.

- Analyze narrative recording practices to find ways of improving clarity, conciseness, and usefulness of records.

- Develop ways of using patient records as a source for program evaluation research.

The experience of the Los Angeles City Health Department has demonstrated that different disciplines and different services within a health center can reconcile their record requirements and share in the use of patient records to the profit of all concerned. This has

been accomplished largely within the limits of resources available prior to the project, and without the need for expensive or complicated equipment.

With new developments in electronic data processing and communications, equipment may be economically feasible in the not too distant future to extend this experience beyond the walls of a single health center or a single agency. In the meantime, we can reap the benefits of a unified record system and be better prepared to move forward when improved equipment becomes available.

## New Light on Genetic Code for Proteins

Partial deciphering of the genetic code, a system of messages between two chemicals that are instrumental in the origin and continuity of life, has been accomplished by Public Health Service scientists. Dr. Marshall W. Nirenberg and Dr. J. Heinrich Matthaei of the National Institute of Arthritis and Metabolic Diseases have prepared a biochemical system that is patterned after the genetic code and that can be directed to manufacture specific proteins.

Introduction of known message-carrying chemical substances into the system to direct the production of certain protein molecules represents a partial cracking of the message code of heredity, which is specific for each type of living cell. The work has important implications for studies of protein synthesis and genetic problems.

The genetic code involves the hereditary materials, DNA (deoxyribonucleic acid) and RNA (ribonucleic acid), present in all living cells. DNA is composed of sugars and phosphoric acid groups to which are attached four chemical bases. Its ability to transmit genetic information from one generation to the next derives from its four bases which make up a template, or mold. This template of hereditary specifications is transferred by RNA,

which in turn directs the manufacture of protein.

RNA's role as messenger is dependent on its own bases—adenine, guanine, cytosine, and uracil. The sequence of these four bases determines how some 20 different amino acids will be linked to form specific protein molecules. A major step toward breaking the code by which varying positions of the bases direct the selection of amino acids has been taken by the NIAMD scientists, who added synthetic RNA to a protein-synthesizing system and produced certain proteins.

Nirenberg and Matthaei prepared the system from extracts of *Escherichia coli*. The addition of certain samples of synthetic RNA caused the system to produce protein material incorporating only certain amino acids. For example, when polyuridylic acid, a synthetic RNA containing only uracil, was added, one particular amino acid, phenylalanine, was incorporated into the protein material. Thus it is possible to relate RNA samples of certain structures to specific amino acids.

This work of Nirenberg and Matthaei was reported in the October 1961 and subsequent issues of *Proceedings of the National Academy of Sciences*.